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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/EP2004/013082

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

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|-------------------------------|-------------|-------|
| Novelty (N)                   | Yes: Claims | 2     |
|                               | No: Claims  | 1,3-9 |
| Inventive step (IS)           | Yes: Claims |       |
|                               | No: Claims  | 1-9   |
| Industrial applicability (IA) | Yes: Claims | 1-9   |
|                               | No: Claims  |       |

2. Citations and explanations

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. The following documents are referred to in this communication:

D1: WO-A-8503458

D2: US-A-4649117

2. The present application does not meet the requirements of Article 33(1) PCT because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

Document D1 describes a reactor suitable for processes involving cultivating living cells, as is the case in some process for preparing beverages and sewage treatment (cf. page 4, lines 18-21). The reactor vessel is provided with a gas injecting device to generate single large bubbles (cf. page 2, line 31-page 3, line 17; page 3, line 34-page 4, line 15; page 6, line 2-page 7, line 4; figure 1). The width of the bubbles represents more than 50% of the reactor width at least at the upper zone of the vessel (see figure 1). Thus, the subject-matter of claim 1 is not new regarding the disclosure of D1.

3. Furthermore, the subject-matter of claim 1 does not involve an inventive step (Article 33(3) PCT) considering D2 as closest prior art. This document describes (col. 1, lines 5-25; col. 1, line 61-col. 2, line 30 figure 1) a bioreactor for culturing cells provided with a bubble generator for injecting single bubbles. The difference between the subject-matter of claim 1 and the disclosure is the relation between the widths of bubble and reactor, being the first one comprised between 50% and 99% of the second one. However, no unexpected technical effect appears to be linked to the particular selection of this relation which appears to be an arbitrary choice, specially considering the lower limit 50%, because a volume comprising 25% of the total width of the reactor (separation between bubble and wall when the relation is 50%) can hardly be considered as a "thin liquid film". Accordingly, the subject-matter of claim 1 does not involve an inventive step.

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

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4. Dependent claims 2-9 do not contain any feature which, in combination with the features of claim 1 would meet the requirements of the PCT in respect of novelty and inventive step. In particular, no unexpected technical effect appears to be related to the limitation of the volume of the bubble (claim 2).

5. The values given for the volume of the bubble in the description and in claim 2 were not present in the priority document